IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application:	Jelley
Serial No	10/747,781
Filed:	December 29, 2003
Examiner:	Burch, Melody M.
Group Art Unit:	3683
For:	GAIN STABILIZING SELF-ENERGIZED BRAKE MECHANISM

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

APPEAL BRIEF

Dear Sir:

Appellant submits this Appeal Brief pursuant to the Notice of Appeal filed February 6, 2008. Enclosed is a check for the appeal brief fee. Any additional fees or credits may be charged or applied to Deposit Account No. 50-1482 in the name of Carlson, Gaskey & Olds.

REAL PARTY IN INTEREST

The real party in interest is ArvinMeritor Technology, LLC assignee of the present invention.

RELATED APPEALS AND INTERFERENCES

There are no prior or pending appeals, interferences or judicial proceedings related to this appeal, or which may directly affect or may be directly affected by, or have a bearing on, the Board's decision in this appeal.

STATUS OF CLAIMS

1, 4-6, 8, 12-15 and 17-22 are pending, rejected, and appealed. Claims 2 and 3 are allowed. Claims 7 and 16 are withdrawn. Claims 9-11 have been cancelled.

STATUS OF AMENDMENTS

All amendments and responses have been entered and considered.

SUMMARY OF CLAIMED SUBJECT MATTER

The subject invention relates to a self-energizing brake assembly 10 as defined in independent claim 1. The self-energizing brake assembly 10 includes a support 22 pivotally mounted at an angle 30 relative to a rotatable brake member 12, and a friction member 18 pivotally mounted relative to the support 22. See page 3, lines 5-7 and 18-21; Figures 1-2. The friction member 18 is slideable along the support 22 between engaged and disengaged positions with the rotatable brake member 12 to generate a braking force between the friction member 18 and the rotatable brake member 12. See page 3, lines 15-19; Figures 1-2. The angle 30 of the support 22 is variable for controlling a self-energizing gain in the braking force. See page 3, lines 5-14; Figures 1-2.

Independent claim 14 recites a method of controlling braking force gain created by a self-energizing brake assembly 10 and comprises the steps of:

a) supporting a friction member 18 for pivoting movement relative to a base 16 slideable along a support 22, wherein the support 22 is pivotally supported at an angle 30 relative to a rotatable brake member 12 (see page 3, lines5-7 and 15-21; Figures 1-2); and

b) changing the angle 30 of the support 22 relative to the rotatable brake member 14 for controlling a self-energizing gain in braking force (see page 3, lines 5-14; Figures 1-2).

Independent claim 19 is direct toward a self-energizing brake assembly 10 that includes a support 22 pivotally mounted at an angle 30 relative to a rotatable brake member 12, and a brake pad friction element 18 pivotally attached to a base 16 that is slideable along the support 22. See page 3, lines 5-7 and 18-21; Figures 1-2. The base 16 is slideable between an engaged position

and a disengaged position with the rotatable brake member 12 to generate a braking force against movement of the rotatable brake member 12, wherein the braking force comprises an applied force 28 and a gain component generated in excess of the applied force 28. See page 4, lines 3-15; Figures 1-2. An actuator 32 varies the angle 30 of the support 22 to control the gain component of the braking force. See page 3, line 22 through page 4, line 2; Figures 1-2.

GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Claims 1, 4-6, 8, 12-15, and 17-22 are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent No. 3,921,764 to Mathauser.

ARGUMENT

Anticipation Rejection Over Mathauser

Claims 1, 4-6, 8, 12-15, and 17-22 are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent No. 3,921,764 to Mathauser.

Claims 1, 8, and 13

Claim 1 requires a support pivotally mounted at an angle relative to a rotatable brake member, and a friction member pivotally mounted relative to the support and slideable along the support between engaged and disengaged positions with the rotatable brake member to generate a braking force between the friction member and the rotatable brake member, wherein the angle of the support is variable for controlling a self-energizing gain in the braking force. Mathauser does not disclose such a configuration.

The examiner argues that Mathauser discloses: a support 48 (support bar), 49 (one of a pair of support arms 49, 50), 51 (pivot pin), 52 (pivot pin), and 55 (pivot pin); a brake member RW (rear wheel); and a friction member 30' (brake block), 31' (brake shoe), and 53 (lug). The examiner argues that the support 48, 49, 51, 52, 55 is mounted at an angle relative to the rotatable brake member RW. Appellant respectfully disagrees. The configuration referenced by the examiner (Figures 4-5) comprises a parallelogram arrangement where the support bar 48 remains parallel to the rear wheel at all times. See col. 4, lines 51-65. As such, one of ordinary

skill in the art would not interpret this parallelogram linkage assembly as corresponding to the claimed support pivotally mounted at an angle relative to the rotatable brake member.

Further, even if this could somehow be interpreted as corresponding to the claimed support, the examiner's friction member is not pivotably mounted relative to the support *and* slideable along the support. Appellant's configuration accomplishes this claimed movement by pivotally mounting the friction element 18 to a wedge 16 that slides on rollers 26 along the support 22. Thus, appellant's friction member is pivotally mounted relative to the support and slideable along the support. Mathauser cannot provide this type of motion. The examiner's friction element 30', 31', 53 is pivotally fixed to the examiner's support element 48, 49, 51, 52, and 55 at pivot pins 55 and 56. As such, the examiner's friction element cannot slide along the support element as the friction element is fixed to the examiner's support element.

Finally, claim 1 recites that the angle of the support is variable for controlling self-energizing gain. As discussed above, one of ordinary skill in the art would not consider the parallelogram linkage assembly of Mathauser as corresponding to appellant's support that is defined as being mounted at an angle relative to the rotatable brake member. As such, one of ordinary skill in the art would not consider Figures 4 and 5 of Mathauser as disclosing a variable angle as defined in claim.

Thus, for the many reasons set forth above, Mathauser does not anticipate claim 1. For similar reasons, Mathauser does not anticipate claims 8 and 13.

Claim 4

Claim 4 recites the feature of an adjustable member that biases the support toward the rotatable brake member. The examiner argues that Mathauser discloses an adjustable member 38' that biases the support toward the brake member. Appellant respectfully disagrees.

Mathauser discloses a cylinder 38' that has one end mounted to bar 48 and from which extends a rod 35' that is mounted to a link arm 49. In response to a braking input request from the bicycle rider, the cylinder is pressurized to move a piston 37 which moves the rod 35' outwardly from the cylinder 38' to apply the brake. A return spring 40 is engaged between the

piston 37 and the end of the cylinder 38' to return the piston 37 to a retracted position to retract the pads 32 from the wheel. See col. 3, lines 47-68; col. 4, line 65 through col. 5, line 8.

As such, it is clear that cylinder 38' does not *bias* the support toward the brake member as defined in the claim. Further, one of ordinary skill in the art would not consider the cylinder 38' as corresponding to the claimed adjustable member that biases the support toward the rotatable brake member. Thus, claim 4 is not anticipated by Mathauser.

Claim 5

Claim 5 recites that the adjustable member comprises a compliant member. The examiner argues that Mathauser discloses a compliant member 40 as shown in Figure 2. As discussed above, the examiner's compliant member 40 does not bias the support toward the brake member. Instead, return spring 40 is configured to move the piston 47 to a retracted position, i.e. spring 40 is biased away from the brake member. See col. 3, lines 64-67. Thus, Mathauser cannot anticipate claim 5.

Claim 6

Claim 6 recites that the adjustable member comprises a linear actuator. The examiner argues that Mathauser discloses a linear actuator 38'. However, as discussed above, the cylinder 38' does not bias the support toward the brake member and instead includes structure that biases the support away from the brake member. Thus, claim 6 is not anticipated by Mathauser.

Claim 12

Claim 12 recites that the friction member contacts an outer perimeter of the rotatable brake member. The examiner argues that Mathauser discloses a rotatable brake member RW, which comprises the rear wheel of a bicycle. Figure 1 of Mathauser clearly shows that the friction member contacts the inner perimeter of the rear wheel RW. Thus, Mathauser cannot anticipate claim 12.

Claims 14 and 18

Claim 14 is directed to a method of controlling braking force gain created by a self-energizing brake assembly comprising the steps of: supporting a friction member for pivoting movement relative to a base slideable along a support, wherein the support is pivotally supported at an angle relative to a rotatable brake member; and changing the angle of the support relative to the rotatable brake member for controlling a self-energizing gain in braking force.

For the reasons set forth above, Mathauser does not anticipate claim 14. Further, claim 14 recites the feature of the friction member being pivotally supported relative to a base that is slidable along the support, where the support is pivotally supported at an angle relative to the brake member. In the rejection of claim 14, the examiner offers no explanation of the elements of Mathauser that correspond to the claim base; however, the examiner identifies these elements in the rejection for claims 19-22. Thus, appellant addresses these additional arguments with regard to claim 14 and the associated dependent claims.

The examiner argues that Mathauser discloses a friction element corresponding the elements identified above with regard to claim 1 plus the addition of element 54, which is another lug. The examiner further argues that Mathauser discloses a base comprising element 50 (the other arm of the pair of parallel arms 49, 50) and element 56 (pivot pin) that is slidable along the support, particularly along portion 52 of the support.

The examiner's "base," i.e. elements 50 and 56, are clearly part of the examiner's support element, i.e. elements 48, 49, 51, 52, and 55, because the entirety of these elements comprise a parallel linkage assembly that operates as a unit. See col. 4, lines 55-65. Elements 50 and 56 cannot be considered as corresponding to the claimed base. Further, elements 50 and 56 do not slide along the examiner's support because the elements are an integral part of the examiner's support. Further, there is no way that arm 50 can be considered as sliding along the support particularly at portion 52 because element 52 comprises a fixed pivot pin that holds arm 50 to bar 48. Pivot pin 51 fixes arm 49 to the bar 48. The arms 49, 50 move together as a unit and as such one of ordinary skill in the art would never consider element 50 as sliding along element 52.

Thus, claim 14 is not anticipated by Mathauser. For similar reasons claim 18 is also allowable over Mathauser.

Claim 15

Claim 15 recites that step a) is further defined as slidably supporting the friction member at the angle relative to the rotatable brake member, and varying the angle relative to the self-energizing gain in braking force. Mathauser does not disclose slideably support a friction member. Brake pad 31 is clearly not slideably supported, and certainly is not slideably supported at an angle as defined in claim 15. Thus, Mathauser cannot anticipate claim 15.

Claim 17

Claim 17 recites the step of biasing the friction member toward engagement with the rotatable brake member with an adjustable member, and moving the adjustable member in proportion to the self-energizing gain in braking force. Mathauser does not disclose an adjustable member as claimed. The examiner has argued that Mathauser discloses an adjustable member 38'; however, this element includes structure 40 that actually biases the brake pads 31 away from the brake member. See col. 3, lines 64-67. Thus, Mathauser cannot anticipate claim 17.

Claim 19

Claim 19 recites the features of a support pivotally mounted at an angle relative to a rotatable brake member; a brake pad friction element pivotally attached to a base slideable along the support between an engaged position and a disengaged position with the rotatable brake member to generate a braking force against movement of the rotatable brake member, wherein the braking force comprises an applied force and a gain component generated in excess of the applied force; and an actuator for varying the angle of the support for controlling the gain component of the braking force.

The examiner argues that Mathauser discloses a friction element corresponding the elements identified above with regard to claim 1 plus the addition of element 54, which is another lug. The examiner further argues that Mathauser discloses a base comprising element 50 (the other arm of the pair of parallel arms 49, 50) and element 56 (pivot pin) that is slidable along the support, particularly along portion 52 of the support.

The examiner's "base," i.e. elements 50 and 56, are clearly part of the examiner's support element, i.e. elements 48, 49, 51, 52, and 55, because the entirety of these elements comprise a parallel linkage assembly that operates as a unit. See col. 4, lines 55-65. Elements 50 and 56 cannot be considered as corresponding to the claimed base. Further, elements 50 and 56 do not slide along the examiner's support because the elements are an integral part of the examiner's support. Further, there is no way that arm 50 can be considered as sliding along the support particularly at portion 52 because element 52 comprises a fixed pivot pin that holds arm 50 to bar 48. Pivot pin 51 fixes arm 49 to the bar 48. The arms 49, 50 move together as a unit and as such one of ordinary skill in the art would never consider element 50 as sliding along element 52.

Finally, claim 19 recites that the actuator varies the angle of the support to control the gain component. The examiner argues that Mathauser discloses an actuator or the manual means to adjust 27' within 28 for varying the angle of the support to control gain. Mathauser does not disclose an actuator as claimed, as the actuator is defined as operating during a braking event. The examiner is referring to adjustment that occurs during non-braking events. Thus, claim 19 is not anticipated by Mathauser.

Claim 20

Claim 20 recites that the actuator is a biasing member. Mathauser does not disclose a biasing member as defined in the claim. The examiner has argued that Mathauser discloses a biasing member 38; however, the cylinder includes structure 40 that operates to bias the linkage assembly away from the wheel. Thus, Mathauser cannot anticipate claim 20.

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Claim 21

Claim 21 recites that the actuator is a linear actuator. Mathauser does not disclose the use of a linear actuator as claimed. The examiner argues that manual adjustment occurs but fails to identify what components correspond to the specified linear actuator. The examiner has previously argued that the linear actuator corresponds to the cylinder 38; however, the cylinder does not adjust the angle to control gain as defined in the claim. Thus, Mathauser does not anticipate claim 21.

Claim 22

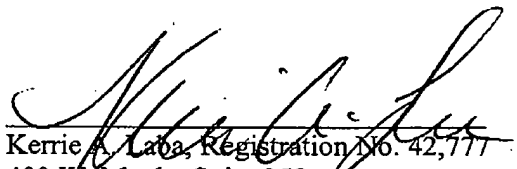
Claim 21 recites that the braking force comprises a constant applied force component and a generated gain component provided by the self-energizing brake assembly and the generated gain component is controlled by varying the angle of the support. The examiner has not specifically identified where in Mathauser the features of claim 22 are taught. Mathauser does not disclose varying an angle to control generated gain as defined in the claim. Thus, Mathauser does not anticipate claim 22.

CONCLUSION

For the reasons set forth above, the rejection of all claims is improper and should be reversed. Appellant earnestly requests such an action.

Respectfully submitted,

CARLSON, GASKEY & OLDS



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Dated: March 19, 2008

CERTIFICATE OF TRANSMISSION UNDER 37 CFR 1.8

I hereby certify that this correspondence is being facsimile transmitted to the United States Patent and Trademark Office, fax number (571) 273-8300, on March 19, 2008.

Laura Combs

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CLAIMS APPENDIX

1. A self-energizing brake assembly comprising:

a support pivotally mounted at an angle relative to a rotatable brake member; and

a friction member pivotally mounted relative to the support and slideable along said support between engaged and disengaged positions with the rotatable brake member to generate a braking force between said friction member and the rotatable brake member, wherein said angle of said support is variable for controlling a self-energizing gain in said braking force.

4. The assembly as recited in claim 1, comprising an adjustable member biasing said support toward the rotatable brake member.

5. The assembly as recited in claim 4, wherein said adjustable member comprises a compliant member.

6. The assembly as recited in claim 4, wherein said adjustable member comprises a linear actuator.

8. The assembly as recited in claim 1, comprising a drive actuator to apply a force to said friction member by decreasing said angle between the rotatable brake member and said support.

12. The assembly as recited in claim 1, wherein said friction member contacts an outer perimeter of the rotatable brake member.

13. The assembly as recited in claim 1, wherein said friction member contacts planar surfaces of the rotatable brake member.

14. A method of controlling braking force gain created by a self-energizing brake assembly comprising the steps of:

a.) supporting a friction member for pivoting movement relative to a base slideable along a support, wherein the support is pivotally supported at an angle relative to a rotatable brake member; and

b.) changing the angle of the support relative to the rotatable brake member for controlling a self-energizing gain in braking force.

15. The method as recited in claim 14, wherein said step a.) is further defined as slidably supporting the friction member at the angle relative to the rotatable brake member, and varying the angle relative to the self-energizing gain in braking force.

17. The method as recited in claim 14, comprising biasing the friction member toward engagement with the rotatable brake member with an adjustable member, and moving the adjustable member in proportion to the self-energizing gain in braking force.

18. The method as recited in claim 14, wherein said step b.) comprises moving the friction member away from the rotatable brake member to maintain a desired magnitude of the self-energizing gain in braking force.

19. A self-energizing brake assembly comprising:

a support pivotally mounted at an angle relative to a rotatable brake member;

a brake pad friction element pivotally attached to a base slideable along said support between an engaged position and a disengaged position with the rotatable brake member to generate a braking force against movement of the rotatable brake member, wherein said braking force comprises an applied force and a gain component generated in excess of said applied force; and

an actuator for varying said angle of said support for controlling said gain component of said braking force.

20. The assembly as recited in claim 19 wherein said actuator is a biasing member.

21. The assembly as recited in claim 19 wherein said actuator is a linear actuator.

22. The assembly as recited in claim 1, wherein said braking force comprises a constant applied force component and a generated gain component provided by the self-energizing brake assembly and said generated gain component is controlled by varying said angle of said support.

EVIDENCE APPENDIX

None

RELATED PROCEEDINGS APPENDIX

None